# SERVICE MANUAL

AUTOMATIC 4-CHANNEL/2-CHANNEL TURNTABLE

## SANSUI FR-5080S

Sansui

SANSUI ELECTRIC CO., LTD.

Sansui

This service manual is designed for service engineers to repair, adjust, maintain and order the replacement parts of the FR-5080S correctly.
When ordering the parts, use the stock number and parts name specifically referring to the Parts Locations & Parts Lists.
For general usage and maintenance of the unit, please refer to the Operating Instructions attached with the unit.

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# 1. SPECIFICATIONS

TYPE .....Two-speed, direct-drive automatic turntable
SPEEDS .....33-⅓ and 45 rpm
FINE SPEED ADJUSTMENT
RANGE .....±3.5%
PLATTER .....Aluminum alloy die-cast 31 cm (12-¼") diameter, 1.4kg (3.1 lbs.)
MOTOR .....20-pole brushless DC servo-type
WOW AND FLUTTER ..less than 0.03% (W.R.M.S)
S/N .....better than 62dB (IEC-B)
RUMBLE .....better than 70dB (DIN-B)
TONEARM .....Statically-balanced S-shaped tubular type
TONEARM LENGTH ....220 mm (8-11/16")
OVERHANG .....15 mm (5/8")
APPLICABLE CARTRIDGE WEIGHT .....4 to 10 g

CARTRIDGE .....SV-43
FREQUENCY RESPONSE .....10~20,000Hz
OUTPUT VOLTAGE ....3.3 mV per channel (1,000Hz 50 mm/sec)
LOAD IMPEDANCE ....47 kΩ
TRAKING FORCE .....2.0 g
STYLUS.....diamond (SN-43)
DIMENSIONS .....470 mm (18-9/16") W
154 mm (6-1/8") H
375 mm (14-13/16") D
WEIGHT .....12.8 kg (28.2 lbs) net
15.0 kg (33.1 lbs) packed
POWER CONSUMPTION..6W

* Design and specifications subject to change without notice for improvements.

# 2. PARTS LOCATION AND PARTS LISTS

## 2-1. Auto Circuit Board Ass'y (Stock No. 7501830) (Stock No. 7502010 U.S.A & CANADA Only)

### Parts List

| Parts No. | Stock No. | Description | Position |
|---|---|---|---|
| C104 | 0635107 | 0.01μF 1000V Mylar Capacitor | |
| | 0605107 | 0.01μF 125V Mylar Capacitor (in U.S.A & CANADA Only) | |
| C105 | 0635226 | 0.0022μF 1400V Ceramic Capacitor | |
| | 0659803 | 0.0022μF 125V Ceramic Capacitor (in U.S.A & CANADA Only) | |

| Parts No. | Stock No. | Description | Position |
|---|---|---|---|
| R104 | 0114101 | 100Ω ½W C.R. | |
| F104 | 0430800, 1 | 0.3A Fuse | |

## 2-2. Power Supply Circuit Board Ass'y (Stock No. 7501840) (Stock No. 7502020 U.S.A & CANADA Only)

### Parts List

| Parts No. | Stock No. | Description | Position |
|---|---|---|---|
| TR101 | 0308392 | 2SD313 Transistor | |
| | 5932020 | RADIATOR (For Transistor) | |
| D101 | 0311520 | SIRBA10 | |
| D102 | 0315360 | RD-19AK | |
| D103 | 0310340 | 10D-1 | Diode |
| D104 | 0316380 | XZ-051 | |
| C101 | 0515471 | 470μF 50V | |
| C102 | 0513101 | 100μF 25V | E.C. |
| C103 | 0511221 | 220μF 10V | |

| Parts No. | Stock No. | Description | Position |
|---|---|---|---|
| R101 | 0107222 | 2.2kΩ ¼W | |
| R102 | 0114561 | 560Ω ½W | C.R. |
| R103 | 0104123 | 12kΩ 1 W | |
| S101 | 1190400 | Voltage Selector (Not included in the unit sold in U.S.A & CANADA Only) | |
| | 0410110 | Neon Lamp | |
| | 3800230 | Power Cord | |

# 3. OPERATION OF MECHANISM

## 3-1. Operation of Auto Mechanism (See Fig. 3-1)

**1.** At the condition of STOP, the micro switch (SW1) and start switch (leaf switch) are OFF, on the other hand, the micro switch (SW2) and muting switch are ON. (cartridge at shortcircuiting condition).

**2.** When the cuing lever is placed at START/STOP position, start switch becomes ON and timing motor starts running.

The timing motor is coupled with starting cam and the starting cam controls the micro switch. When the timing motor starts running, the starting cam starts moving together and the micro switch (SW1) becomes ON from OFF. (Therefore, as for the start switch, the switch is turned ON temporarily).

Simultaneously with it, the main motor will start operating.

**3.** When the starting cam makes in half revolution, the starting plate will turn up to a certain angle. Meanwhile, if the cam does in another half revolution, the plate will reversely revolves in its function. Namely, when the starting cam carrys out in one revolution, the starting plate makes one cycle movement.

**4.** When the timing motor, starting cam and starting plate are operated, the START/RETURN plate located at tip end of the starting plate will push the PU plate located at the lower part of the tone arm and it will keep pushing the tone arm until it reaches to the position of the lead-in groove of disk.

When it comes to this position, the select arm (B) (See Fig. 3-1) will serve as stopper and the START/RETURN plate which pushes PU plate so far will be turned over and it does not push the PU plate anymore.

Then, it is at AUTO-IN position.

**5.** When the tonearm comes to the AUTO-IN position, the starting cam will be made in half revolution. The micro switch (SW2) which is so far ON will be turned OFF, and the timing motor will stop. Simultaneously with it, the muting switch is turned OFF (cartridge at open condition) from ON (cartridge at shortcircuiting condition), and performance starts as a result.

**6.** While playing disk, the micro switch (SW1) is ON, the micro Switch (SW2) and muting switch are OFF. When performance proceeds and the stylus tip traces up to the lead-out groove, the magnet located at tip end of PU plate ass'y comes at side of Reed switch and turns this Reed switch ON. When the Reed switch is turned ON, the timing motor will start running and the micro switch (SW2) will be turned ON.

**7.** When the timing motor starts operation once again, the starting cam will start next half revolution.

Then, the starting plate revolves contrary to that at the time of AUTO-IN. And, the START/RETURN plate pushes the PU plate from the reverse direction and makes tonearm return. However, when it comes to the position of arm rest, the tonearm is stopped by the stpoper located on the arm base and the START/RETURN plate is turned over and the tonearm will land on the arm rest.

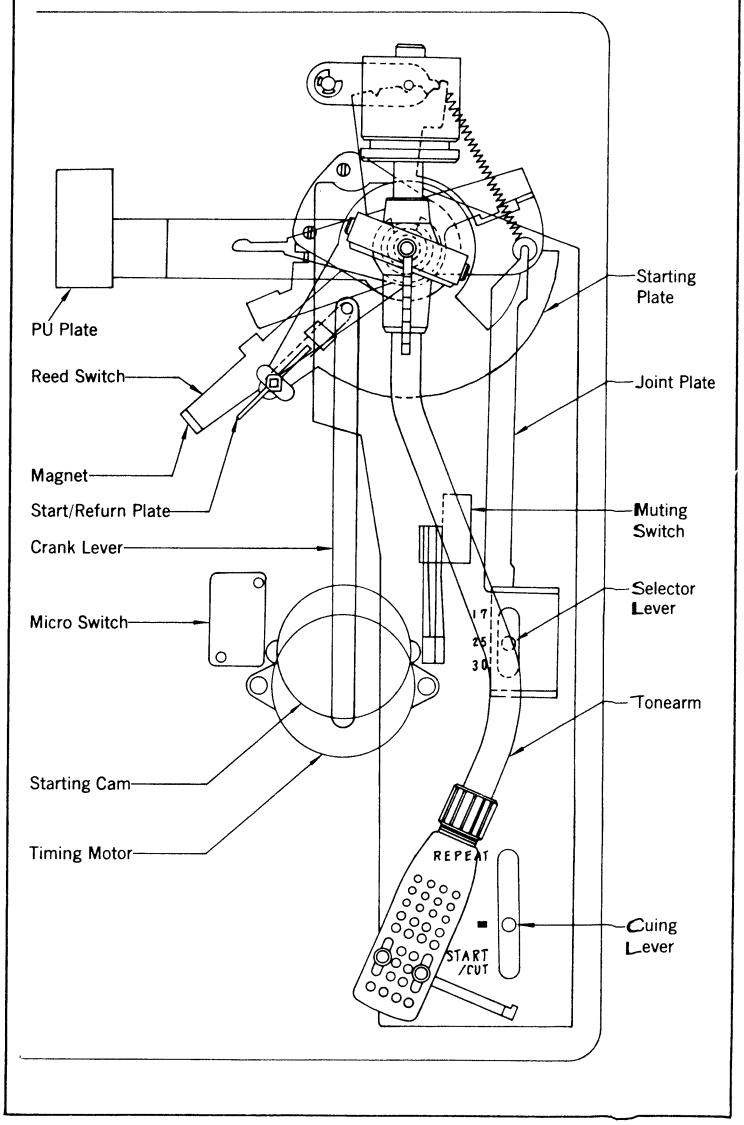
Thus, the stating cam will be turned in one revolution and the micro switch (SW1) will be turned OFF.

Thus, the motor and timing motor will stop their operation and they will return to the original stop condition.

**8.** When the auto lever is placed at position of REPEAT, the timing motor starts again because the start switch is ON even if the performance finished and the micro switch (SW1) becomes OFF.

Accordingly, as the micro switch (SW1) which was turned OFF is turned ON, REPEAT performance will be made.

**Fig. 3-1**

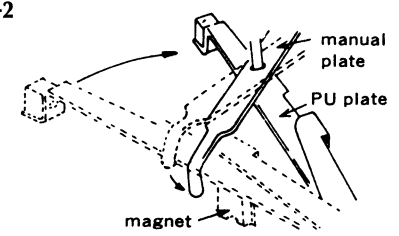


## 3-2. Operation of Manual Mechanism

*The mechanism of manual plate is for preventing extra motion of tonearm and also for moving it smoothly when is set on desirable position of disk.

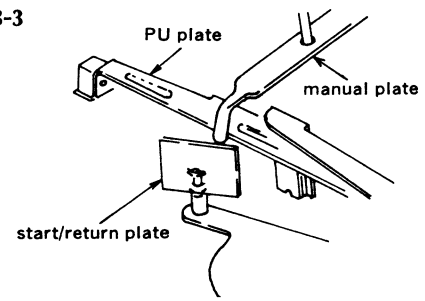
1) The manual plate moves as shown in Fig. 3-2 when tonearm is put on desirable position of disk.

Fig. 3-2




2) After moving tonearm to the desirable position of disk (it does not completely comes down on the groove), pull the cuing lever to "START/RETURN" plate (See Fig. 3-3).
The START/RETURN plate makes one quarter turns (¼ turns) by touching manual plate when the tonearm returns to arm-rest in AUTO-RETURN operation then, the tonearm will slowly descend to the record surface.

Fig. 3-3




## 3-3. Caution for Manual Plate Replacement

1) The manual plate must not get off from the PU plate when the tonearm is pulled in the outmost right side direction. (See Fig. 3-4)
2) When loosing screw Ⓐ and Ⓑ (See Fig. 3-5) for replacing the plate, refer to the following adjustment.

① Move the tonearm about 10mm to 15mm inside from the arm-rest.

Fig. 3-4

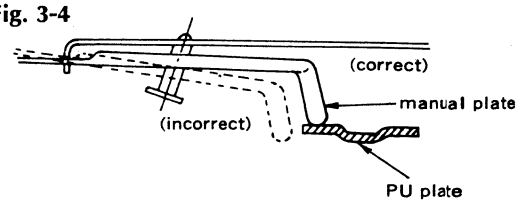
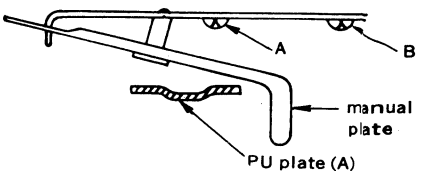
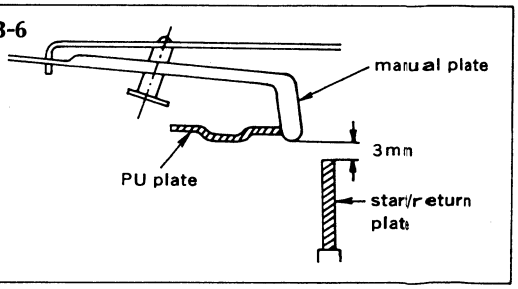



Fig. 3-5




② The clearance between the manual plate and START/RETURN plate must be 2mm to 3mm as shown in Fig. 3-6.

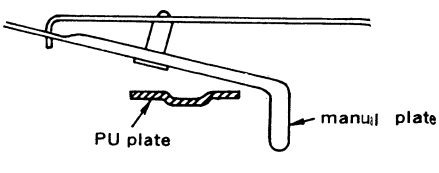
Fig. 3-6




③ After above steps ①, and ②, screw them (Ⓐ & Ⓑ) up.

3) While the stylus tip traces on the first point of modulated groove nearest to lead-in groove of LP record (30cm), the manual plate must not touch on the PU plate (See Fig. 3-7).

Fig. 3-7

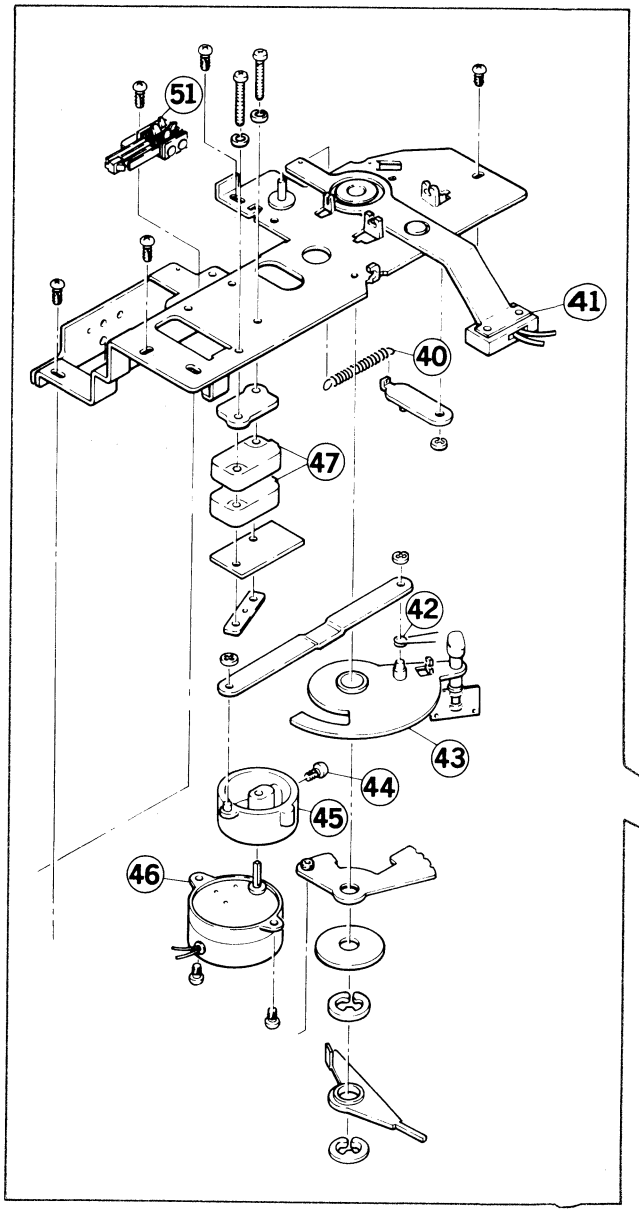


# 4. DISASSEMBLY WITH EXPLODED VIEWS, PARTS LOCATION AND PARTS LIST

## Parts List

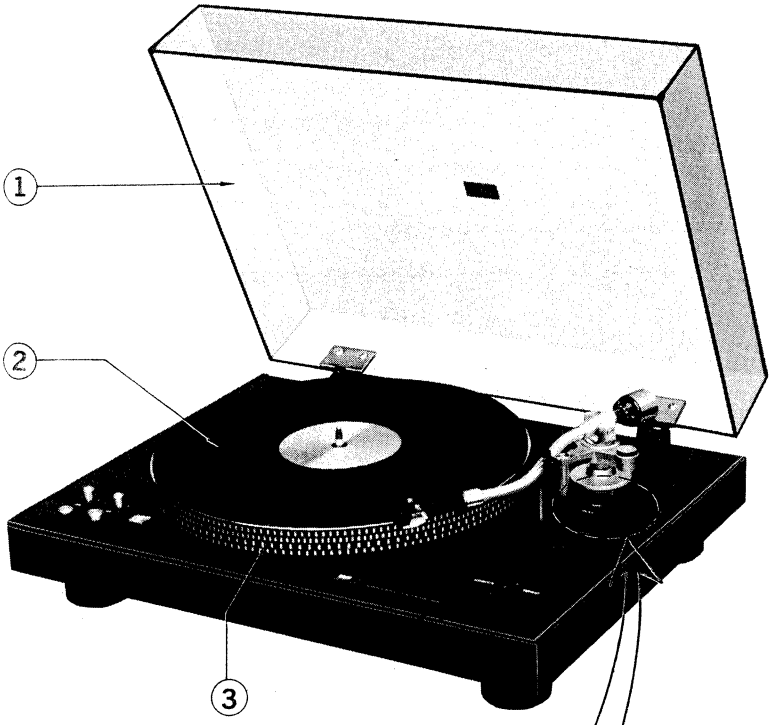
| Parts No. | Stock. No. | Description |
|---|---|---|
| 1 | 7012060 | Dust Cover Ass'y |
| | 5362401 | Name Plate, dust cover |
| | 6922250 | Lock Plate |
| | 5109563 | Oval Countersunk Head Screw, M4 × 10 |
| | 5502490 | Rubber Cushion |
| 2 | 7292110 | Rubber Mat, turntable |
| 3 | 6112120 | Turntable (Platter) |
| 4 | 7062260 | PU Plate Ass'y |
| 5 | 5103025 | P Type Screw, M2.6 × 8 |
| 6 | 5103074 | P Type Screw, M4 × 32 |
| 7 | 6912141 | Arm Balancer |
| 8 | 5106624 | F Type Screw, M2.6 × 8 (Polycarbonate) |
| 9 | 5992010 | Magnet (A) |
| 10 | 5162500 | Adjusting Screw (B) |
| 11 | 5162490 | Adjusting Screw (A) |
| 12 | 5103044 | P Type Screw, M3 × 8 |
| 13 | 5101021 | B Type Screw, M2.6 × 4 |
| 14 | 5992110 | Magnet (B) |
| 15 | 6902330 | Spring, PU plate ass'y |
| 16 | 7062280 | Manual Plate Ass'y |
| 17 | 7092480 | Tonearm Ass'y |
| | 6912430 | Main Weight |
| | 7082250 | Tonearm Base Ass'y |
| | 7082240 | Tonearm Guide |
| | 6912440 | I.F.C Ass'y |
| 18 | 7092470 | Arm Rest Ass'y |
| 19 | 5372110 | Knob, manual lifter |
| 20 | 7082230 | Manual Lifter Ass'y |
| | 6012320 | Lifter Cam |
| 21 | 5312250 | Knob, selector |
| | 6012300 | Selector Cam |
| 22 | 5312250 | Knob, cuing |
| 23 | 4320450 | Motor |
| 24 | 5422020 | Strobo Lens |
| | 0410110 | Neon Lamp |
| | 5612030 | Lamp Case |
| 25 | 5326500 | Push Button, speed selector |
| 26 | 5312240 | Knob, speed control volume |
| 27 | 1190400 | Voltage Selector (Not included in the unit sold in U.S.A & CANADA) |
| 28 | 3800230 | Power Cord |
| 29 | 7172160 | Cabinet Ass'y |
| | 5332041 | Sansui Badge |
| | 5422020 | Strobo Lens |
| | 6922240 | Auto Hinge |
| | 5362540 | Name Plate, model name |
| 30 | 2200390 | Terminal Board Ass'y |
| 31 | 4002490 | Transformer |
| | 4002492 | Transformer (in U.S.A & CANADA Only) |
| 32 | 7501830 | Auto Circuit Board Ass'y |
| | 7502010 | Auto Circuit Board Ass'y (in U.S.A & CANADA Only) |
| 33 | 1005250 | 3kΩ (B) Volume |
| 34 | 1005240 | 2kΩ (B) Volume |
| 35 | 1131330 | Push Switch (2 Stage) |
| 36 | 5612030 | Lamp Case |
| 37 | 7501840 | Power Supply Circuit Board Ass'y |
| | 7502020 | Power Supply Circuit Board Ass'y (in U.S.A & CANADA Only) |
| 38 | 6012310 | Cuing Cam |
| 39 | 1160190 | Micro Switch |
| 40 | 6902330 | Spring, position detector |
| 41 | 1190390 | Reed Switch |

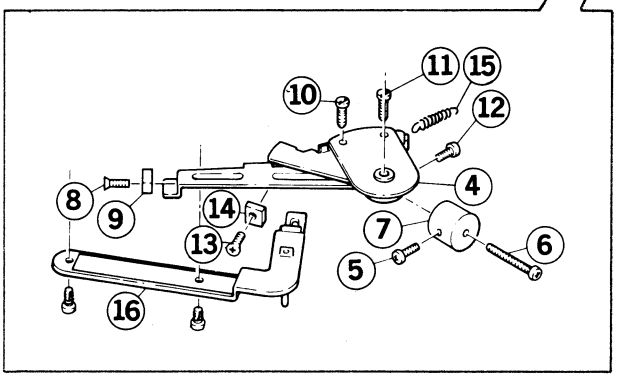
| Parts No. | Stock No. | Description |
|---|---|---|
| 42 | 6902360 | Spring, starting plate |
| 43 | 7062270 | Starting Plate Ass'y |
| 44 | 5103541 | PT Type Screw, M3 × 6 |
| 45 | 6012240 | Starting Cam |
| 46 | 4320110 | Timing Motor |
| 47 | 1160140 | Micro Switch |
| 48 | 5502520 | Insulator |
| 49 | 5022080 | Bottom Cover (A) |
| 50 | 5022090 | Bottom Cover (B) |
| 51 | 1190140 | Mute Switch |

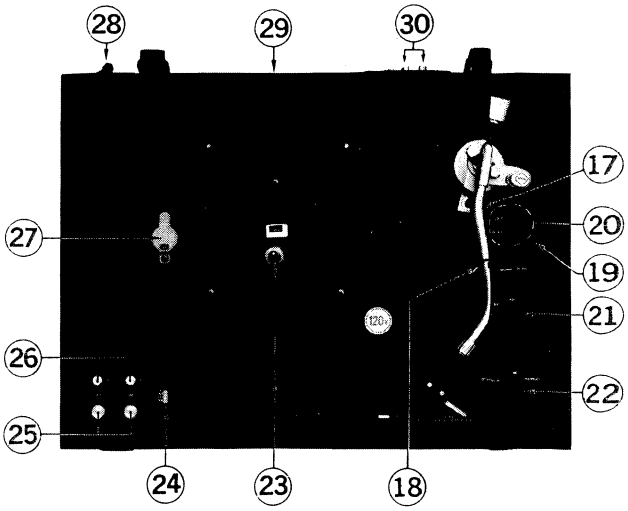


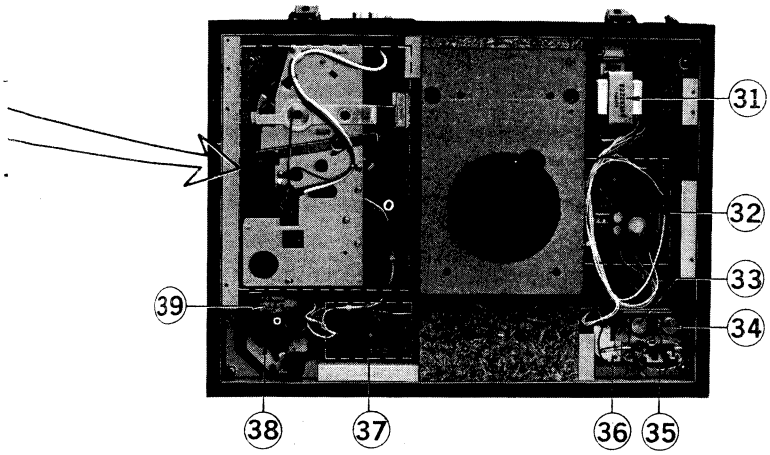
## Abbreviations

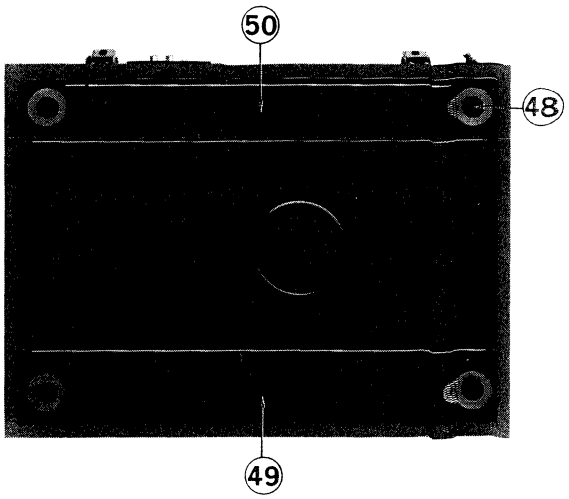
1. Pan Head Screw ·····P
2. Binding Head Screw ····· ·····B
3. Flat Countersunk Head Screw ·····F
4. Oval Countersunk Head Screw ·····O
5. Flat Fillister Screw ·····FS
6. Pan Head SEMS Screw (F Type)···PSF
7. Pan Head Tapping Screw·····PT
8. Round Head Wood Screw ·····RH
9. Retaining Ring (E Washer) ·····E
10. Plain Washer·····P
11. Spring Washer ····S



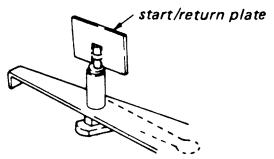



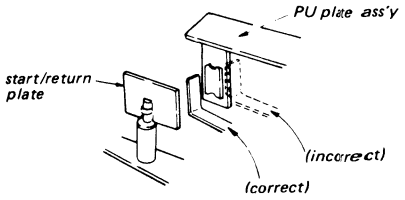
# 5. TROUBLESHOOTING

| Symptom-1 | Symptom-2 | Cause & What to Do |
|---|---|---|
| **1. Turntable not rotating** | | |
| | 1-1. Turntable not rotaing | 1. Belt off |
| | | 2. Broken or stretched belt |
| | | 3. Loose capstan screw (Capstan racing) |
| | | 4. Burn out turntable spindle |
| | 1-2. Motor not rotating | 5. Loose connection of power cord |
| | | 6. Defective start switch (Leaf switch) |
| | | 7. Defective timing motor |
| **2. No sound** | | 8. Cartridge open |
| | | 9. Loose connection of output cord |
| | | 10. Improper connection of output cord |
| | | 11. Defective muting switch |
| | | 12. Improper operation of amplifier |
| | | 13. Imperfect contact of tonearm and shell |
| **3. Distorted or weak sound** | | 14. Improper setting of stylus |
| | | 15. Worn out stylus |
| | | 16. Dusty stylus |
| | | 17. Loose pivot of tonarm |
| | | 18. Improper connection of cartridge leads |
| | | 19. Poor record cutting |
| **4. Hum** | | 20. Cartridge leads (ground side) open |
| | | 21. Loose connection of output cord |
| | | 22. Improper connection of output cord |
| | | 23. Imperfect contact of muting switch |
| | | 24. Imperfect contact of tonearm and shell |
| **5. Rumble (Unusual) sound** | | |
| | 5-1. Due to motor | 25. Defective motor |
| | | 26. Shipping bolts not unscrewed |
| | 5-2. Other than motor | 27. Defective turntable spindle |
| | | 28. Dirty capstan |
| **6. Incorrect speed** | | 29. Improper capstan |
| | | 30. Improper setting of capstan |
| | | 31. Dirty capstan |
| | | 32. Stretched belt |

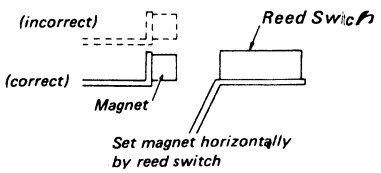
| Symptom-1 | Symptom-2 | Cause & What to Do |
|---|---|---|
| **7. Improper tracing** | | 33. Defective tonearm |
| | | 34. Dirty stylus |
| | | 35. Defective stylus |
| | | 36. Improper stylus pressure (too light) |
| **8. Trouble of Auto mechanism** | | |
| | 8-1. Auto mechanism not operative | 37. Defective start switch (Leaf switch) |
| | | 38. Defective micro switch, SW1 |
| | | 39. Defective micro switch, SW2 |
| | | 40. Broken crank lever |
| | | 41. Defective timing motor |
| | 8-2. Trouble of Auto-in | 42. Loose adjustments (Refer to 3 adjustments) |
| | | 43. Defective START/RETURN plate. |




| | | |
|---|---|---|
| | | 44. Improper setting of selector arm B |




| | | |
|---|---|---|
| | 8-3. Trouble of Auto-return | 45. Loose adjustments (Refer to 3 adjustments) |
| | | 46. Defective Reed switch |
| | | 47. Declined magnetic field of magnet |
| | | 48. Improper setting of magnet |



# 6. ADJUSTMENTS (See Fig. 6-1, 6-2 and 6-3)

Before adjusting AUTO-RETURN and AUTO- IN, please proceed the followings in numerical order.

1) Mount the cartridge-equipped headshell to the tonearm.
2) Overhang adjustment (See page 6 of the Operating Instructions).
3) Tonearm horizontal balance adjustment (See page 8 of the Instructions).
4) Tracking-force adjustment (See page 10 of the Instructions).
5) Anti-skating device adjustment (See page 10 of the Instructions).
6) The adjusting screw "A" in Fig. 6-1 is one to adjust the position of AUTO-IN (position which tonearm put down on the surface of disk).
   The adjusting screw "B" in Fig. 6-1 is the one to adjust the position of AUTO-RETURN (position which tonearm lifts up from the surface of disk).
7) When the screw "A" is turned counter-clockwise, the timing of AUTO-IN will become sooner. To the contrary, when it is turned clockwise, the timing of AUTO-IN will become later.
   Make adjustment of the screw in such a way that the tip of the stylus will touch the middle way of the lead-in groove.
8) When the screw "B" is turned counterclockwise, the timing of AUTO-RETURN will become later. To the contrary, when it is turned clockwise, the timing of AUTO-RETURN will become sooner.
   Make adjustment of the screw in such a way that AUTO-RETURN operation is carried out at the middle way of the lead-out groove.

**Fig. 6-1**

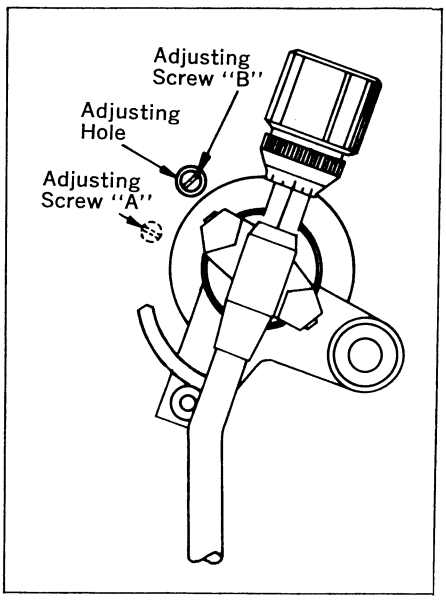



**Fig. 6-2**

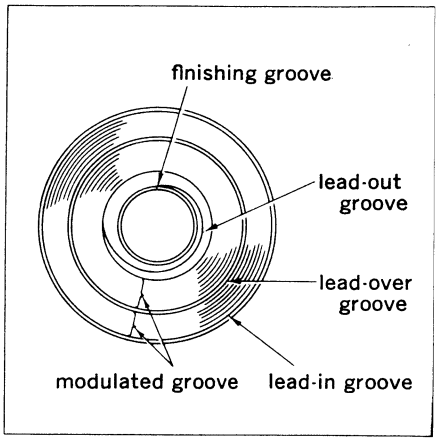
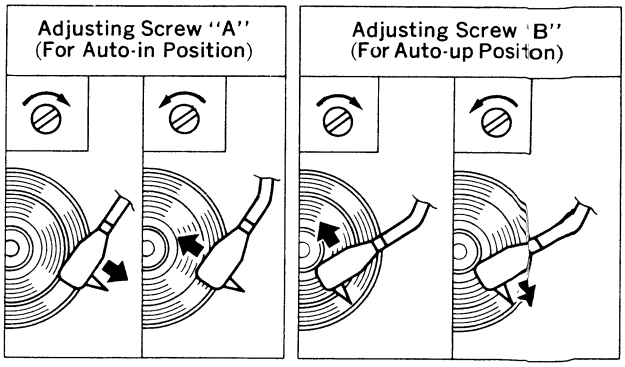
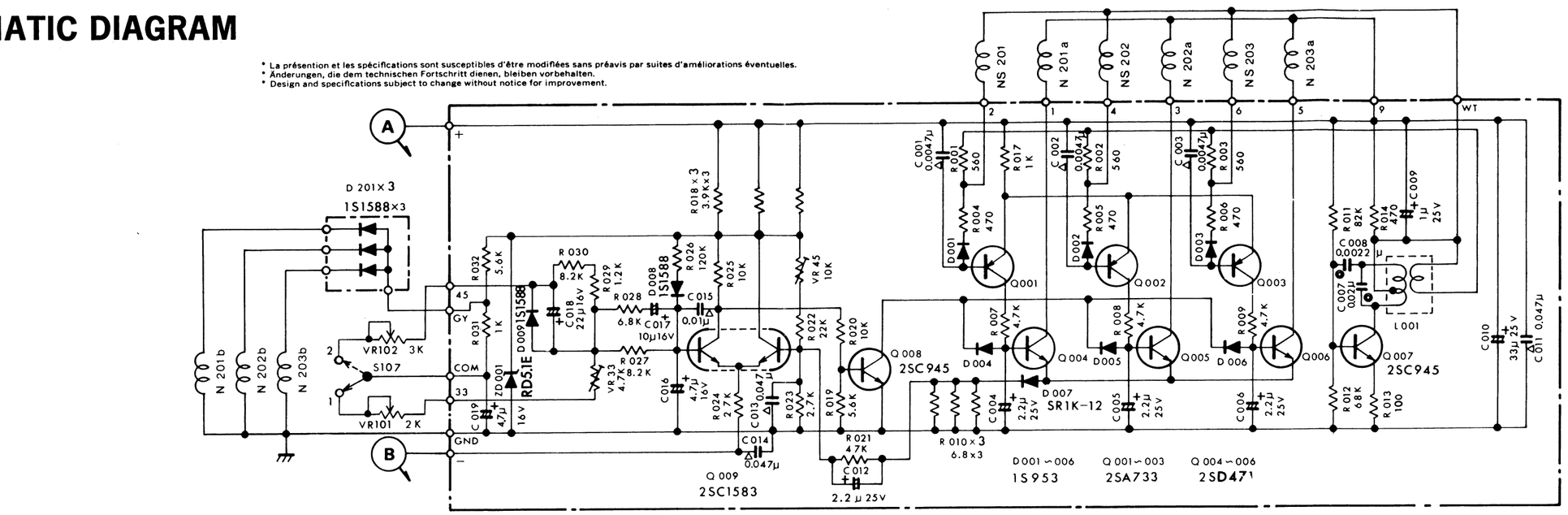


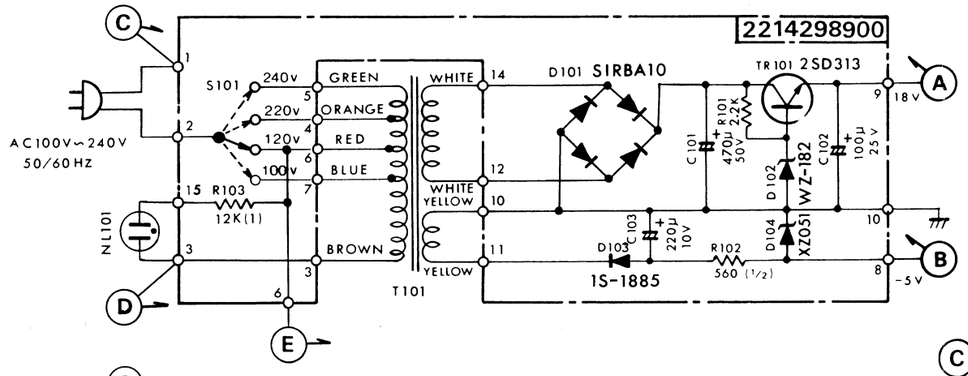

**Fig. 6-3**

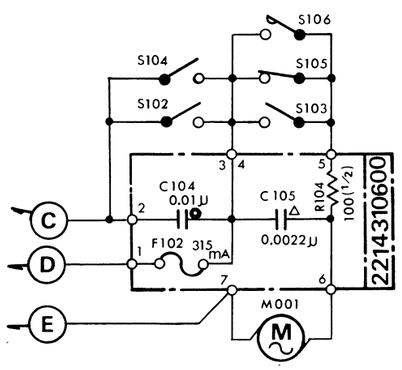


# 7. SCHEMATIC DIAGRAM

* La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
* Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.
* Design and specifications subject to change without notice for improvement.



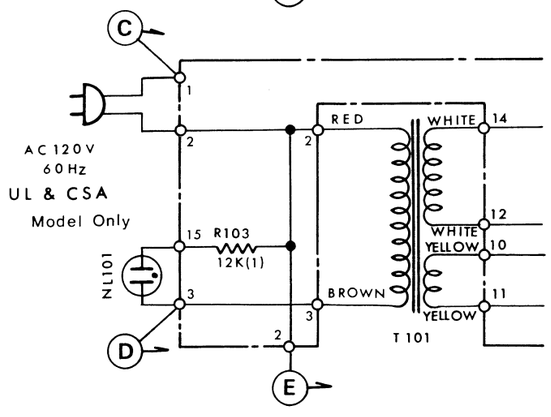



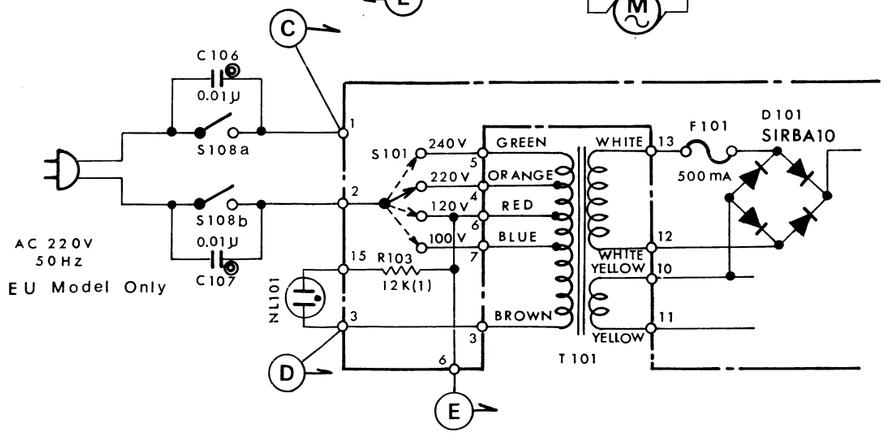

S101 VOLTAGE SELECTOR SW
S107 SPEED SELECTOR SW
1. 33
2. 45
VR101 33 SPEED ADJ.
VR102 45 SPEED ADJ.

CAPACITOR
◎ MYLAR
△ CERAMIC

RESISTOR: ALL RESISTORS ¼ WATTS UNLESS OTHERWISE NOTED

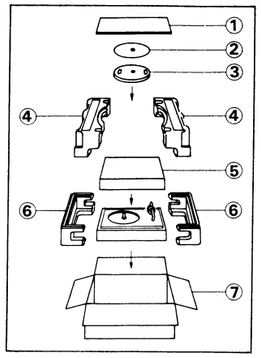
S108(a.b) POWER SW



# 8. PACKING LIST

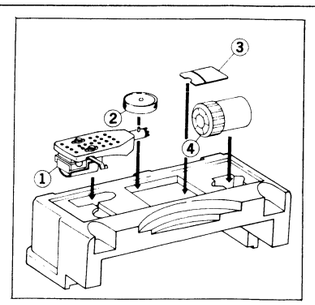
| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 9022590 | Inner Packing |
| 2 | 7292110 | Rubber Mat Ass'y |
| 3 | 6112120 | Turntable (Platter) |
| | 9112150 | Vinyl Cover (For Rubber Mat Ass'y and Turntable) |
| 4 | 9022580 | Stylofoam Packing |
| 5 | 7012060 | Dust Cover Ass'y |
| | 9122012 | Poryetylene Sheet (For Dust Cover) |
| 6 | 9022570 | Stylofoam Packing |
| 7 | 9002560 | Carton Case |
| | 5996080 | Curl Stopper |
| | 3810230 | PU Output Cord |
| | 9209690 | Operating Instructions |




# 9. ACCESSORY PARTS LIST

* With units, Sold in certain countries, no cortridge is provied.

| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | | Head Shell Ass'y |
| | 6642190 | Head Shell |
| | 4310340 | Cartridge (SV-43) |
| | 4940220 | Stylus (SN-43) |
| 2 | 6172040 | 45 r.p.m. Adaptor |
| 3 | 9412010 | Overhang Gauge |
| 4 | 6912430 | Main Weight |



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